U.S. Environmental Protection Agency
Natural Gas STAR Program

IQR for STAR

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IQR

IQR is a systematic approach for implementing a program to:

- ★**I**dentify Emission Sources
- ★**Q**uantify Emission Sources
- ★**R**educe Emissions

Identify

- People to obtain buy-in for implementation (management, operations, engineering)
- Identify facilities to target
- Identify emission sources and processes to target

Identify People

- ★ Determine key people needed to make project successful
- ★ Determine strategy for obtaining buy-in:
  - Recognition - awards, competition, cost reduction
  - Certainty - economic payout, sustainable development, environmental benefit
  - Variety of ways to get a reduction
  - Connection to a team achieving a goal - T-Shirts, caps
  - Contribution to the greater good

Identify Facilities

- Identify and rank facilities based on throughputs of of crude oil/condensate and natural gas
- Rank facilities - highest to lowest production
- Target largest throughputs
- Consider who you are dealing with - adjust strategy to the individual and/or group

Identify Emission Sources

- Identify emission sources to target - review STAR BMPs in the online Lessons Learned, PROs and Case Studies
- Target low hanging fruit and sources that meet

Quantify Emissions

- Estimate methane vented from each targeted sources using available methods
- Rank sources highest to lowest potential for methane emissions

Estimation Methods

- Direct measurement - flowrate, gas analysis
- Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources AP-42, See www.epa.gov/ttn/chief/ap42/index.html
- American Petroleum Institute - E&P TANK, AMINECalc, Fugitive Emissions
- GTI GRI-GLYCalc
- STAR Program online documents
- Manufacturer's data

Top 5 PROs for the Production sector

- ★Vapor recovery units - tanks, flash gas
- ★Plunger lifts
- ★Flares - tanks, flash gas
- ★Electric pumps
- ★Instrument air systems

Gulf of Mexico - Production Opportunities

- ★Vapor recovery units and flare - tanks, flash gas
- ★Glycol dehydration units - TEG circ rate, flash tanks, still column vent controls
- ★Instrument air systems for pneumatics
- ★Facility depressurizing
- ★Compressor seals

Top 5 PROs for the Transmission and Distribution sectors

- ★ Use fixed/portable compressors for pipeline pumpdown
- ★ Replace wet gas seals with dry seals
- ★ Install vapor/fuel recovery systems
- ★ Use composite wrap for pipeline repair
- ★ Redesign blowdown/alter ESD practices

Top 5 PROs for the Gathering and Processing sector

- ★ Eliminate unnecessary equipment
- ★ Re-route glycol skimmer gas
- ★ Vapor recovery units
- ★ Modify shutdown logic of compressors
- ★ Replace gas pumps with electric pumps

Reduce Emissions

- ★ Implement strategy for each facility and/or emission source type
- ★ Document reductions
- ★ Quarterly review and adjust implementation strategy. Be flexible.
- ★ Report emission reduction activities online on an annual or more frequent basis

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All technical documents, on-line tools and other resources are available on the Natural Gas STAR Program Web site: www.epa.gov/gasstar